




Safety Data Sheet

NFPA HAZARD RATING				U.S. TRANSPORT SUMMARY	
0	Least				Regulated in quantities greater than or equal to 119 gallons; see Section 14 for additional information.
1	Slight	1	Health		
2	Moderate	2	Flammability		
3	High	0	Reactivity		
4	Severe				

SECTION 1: IDENTIFICATION	
Product Name: Crossbow™ Herbicide by Winfield EPA Registration #: 62719-260-1381 Product ID/Unity #: 1563944, 1563945, 1563946 Common Name: Triclopyr and 2,4-DBE Chemical Description: Triclopyr-2-butoxyethyl ester and 2,4-Dichlorophenoxyacetic acid, butoxyethyl ester Recommended Uses: Agricultural herbicide – See product label for complete list of use sites. Restrictions for Use: See product label for any potential restrictions on use.	MEDICAL EMERGENCY TELEPHONE NUMBER: 1-877-424-7452 (24hrs) Non-Emergency Business Inquiries: 1-855-494-6343 Mon – Fri 8am – 5pm (Central Standard Time)
Manufactured For: WINFIELD SOLUTIONS, LLC P. O. Box 64589 St. Paul, MN 55164-0589	
FOR EMERGENCY, SPILL, LEAK, FIRE, EXPOSURE, OR ACCIDENT, CALL: CHEMTREC 1-800-424-9300 (24 hours)	

SECTION 2: HAZARDS IDENTIFICATION	
EMERGENCY OVERVIEW: Red to brown liquid with a sweet odor. Combustible liquid and vapor. May cause allergic skin reaction. May cause eye and skin irritation. May cause respiratory tract irritation. Harmful or fatal if swallowed; can enter lungs and cause damage.	
POTENTIAL HEALTH EFFECTS: Eyes: May cause moderate eye irritation. Corneal injury is unlikely. Skin: May cause irritation with drying and flaking of the skin or redness after prolonged exposure. Inhalation: Excessive exposure may cause irritation of the upper respiratory tract. Ingestion: Aspiration into the lungs may occur during ingestion or vomiting, causing lung damage or even death due to chemical pneumonia. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury. Preexisting Conditions: Skin contact may aggravate existing dermatitis. Inhalation may aggravate existing lung disease. Chronic Health Effects: See section 11 for full information.	
Carcinogenicity:	NTP: Not listed IARC: Not listed OSHA: Not listed
OSHA HCS 2012 CLASSIFICATION: Flammable Liquids Category 4; Acute Oral Toxicity Category 4; Skin Sensitization Category 1B; Aspiration Hazard Category 1	
SIGNAL WORD: DANGER	
HAZARD STATEMENTS: Combustible liquid. Harmful if swallowed. May be fatal if swallowed and enters airways. May cause an allergic skin reaction.	 
Percent of product with unknown toxicity: 0%	

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PRECAUTIONARY STATEMENTS:

Prevention: Keep away from flames and hot surfaces. - No smoking. Wear protective gloves, eye protection and face protection. Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product. Do not breathe mist, vapors, spray. Contaminated work clothing must not be allowed out of the workplace.

Response: **If Swallowed:** Immediately call a poison control center (1-877-424-7452) or doctor for treatment advice. Rinse mouth. Do Not induce vomiting.
If on skin: Wash with plenty of water. If skin irritation or rash occurs: Get medical attention. Wash contaminated clothing before reuse.
In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Storage: Store in a well-ventilated place. Keep cool. Store locked up.

Disposal: Dispose of contents/container in accordance with Federal, state and local regulations.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient	% (wt)	CAS Reg. #
2,4-Dichlorophenoxyacetic acid, butoxyethyl ester	34.4%	1929-73-3
Triclopyr-2-butoxyethyl ester	16.5%	64700-56-7
Kerosene (petroleum)	41.5%	8008-20-6
2-ethylhexanol	1.9%	104-76-7
*Ingredients not specifically listed are non-hazardous and/or are considered to be confidential business information under 29 CFR 1910.1200(j).		
See Section 8 for exposure limits.		

SECTION 4: FIRST AID MEASURES

Inhalation: Remove person from contaminated area to fresh air and assist breathing as needed. Seek medical attention if irritation occurs.

Ingestion: Seek medical attention or call a poison control center immediately for treatment advice. Do not induce vomiting unless instructed to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.

Eyes: Flush eyes with clean water for at least 15 minutes. Lift eyelids to facilitate irrigation. If present, remove contact lenses after 5 minutes and continue rinsing. Seek medical attention if irritation persists.

Skin: Remove contaminated clothing and wash before re-using. Flush skin with water and then wash with soap and water. Seek medical attention if irritation persists.

NOTE TO PHYSICIAN: Skin contact may aggravate preexisting dermatitis. Repeated excessive exposure may aggravate preexisting lung disease. Maintain adequate ventilation and oxygenation of the patient. May cause asthma-like (reactive airways) symptoms. Bronchodilators, expectorants, antitussives and corticosteroids may be of help. The decision of whether to induce vomiting or not should be made by a physician. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. Exposure to this material may impair the ability to operate hazardous equipment or drive vehicles. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Have the Safety Data Sheet, and if available, the product container or label with you when calling a poison control center or doctor, or going for treatment.

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SECTION 5: FIRE FIGHTING MEASURES

Suitable Extinguishing Media: Alcohol-resistant foams (ATC type) are preferred. Other acceptable extinguishing media are: carbon dioxide, water fog or fine spray, dry chemical. General purpose synthetic foams or protein foams may function, but will be less effective.

Unsuitable Extinguishing Media: Do not use a direct water stream as it may spread fire

Special Fire Fighting Procedures: Wear NIOSH/MSHA approved self-contained breathing apparatus and full bunker gear. Dike area to prevent runoff and contamination of water sources. Dispose of fire control water later. Avoid breathing vapors; keep upwind. Isolate fire and deny unnecessary entry. Fire water run-off, if not contained, may cause environmental damage.

Hazardous Combustion Products: May include and are not limited to: nitrogen oxides, hydrogen chloride, carbon monoxide, carbon dioxide, and trace amounts of phosgene.

Unusual Fire and Explosion Hazards: Container may rupture from gas generation in a fire situation. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids. Dense smoke is produced when product burns.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions: Refer to Section 8 for personal protective equipment to be worn during containment and clean-up of a spill involving this product.

Environmental Precautions: Do not allow spilled product or washings to enter sewers or waterways.

Methods for Containment: Contain spilled product by diking area with sand or earth.

Methods for Clean-up: Cover spilled product with an inert absorbent material such as sand, vermiculite or other appropriate material. Vacuum, scoop or sweep up material and place in a container for disposal. Do not place spilled material back in original container.

Other Information: Spills of this product may require reporting under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as the product contains 2,4-D Ester (2,4-D) with a reportable quantity (RQ) of 100 lbs. See Section 15 for additional information.

SECTION 7: HANDLING AND STORAGE

Handling: RECOMMENDATIONS ARE FOR MANUFACTURING, COMMERCIAL BLENDING, AND PACKAGING WORKERS. PESTICIDE APPLICATORS AND WORKERS must refer to the pesticide product label and Directions for Use attached to the product for Agricultural Use Requirements in accordance with the EPA Worker Protection Standard 40 CFR part 170. Ensure adequate ventilation. Immediately clean up spills that occur during handling. Keep containers closed when not in use. Practice good hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics. Do not cut, drill, grind, weld or perform similar operations on or near empty containers.

Storage: Store in cool, dry areas away from children, feed and food products and sources of heat. Store in original container with lid tightly closed. Do not store in direct sunlight. **See pesticide product label for additional storage information.**

Minimum Storage Temperature: Not determined

Other Precautions: Consult Federal, state and local laws and regulations pertaining to storage.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

Component:	OSHA PEL	ACGIH TLV	NIOSH REL
Triclopyr-2-butoxyethyl ester DOW Industrial Hygiene Guidance = 2 mg/m ³ (TWA) SKIN, DSEN			
Kerosene (petroleum)	2,000 mg/m ³ / 500 ppm (TWA)	200 mg/m ³ , as total hydrocarbon vapor	

NOTE TO END USERS: PERSONAL PROTECTIVE EQUIPMENT (PPE) AND CLOTHING LISTED IN THIS SECTION IS FOR MANUFACTURING, COMMERCIAL BLENDING AND PACKAGING WORKERS. APPLICATORS AND HANDLERS SHOULD REFER TO THE PESTICIDE PRODUCT LABEL FOR PROPER PERSONAL PROTECTIVE EQUIPMENT (PPE) AND CLOTHING.

Respiratory Protection: Where airborne exposure to concentrations greater than the above listed exposure limits is likely, use a NIOSH approved respirator with organic vapor cartridge with a particulate pre-filter.

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Engineering Controls:	Local Exhaust: Provide general or local exhaust ventilation systems to maintain airborne concentrations below OSHA PELs or other specified exposure limits. Local exhaust ventilation is preferred.
Protective Gloves: Wear chemical resistant gloves. Examples of preferred glove barrier materials include: chlorinated polyethylene, neoprene, nitrile/butadiene rubber ("nitrile"), polyethylene, viton, etc.	
Eye Protection: Wear chemical goggles or safety glasses and full-face shield. Contact lenses are not eye protective devices.	
Other Protective Clothing or Equipment: Wear long sleeve shirt, long pants and chemical resistant boots plus socks to prevent skin exposure.	
Work/Hygienic Practices: Never eat, drink, nor use tobacco in work areas. Practice good hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.	

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid	Specific Gravity (H₂O=1):	1.0114 (typical)
Vapor Pressure (mm Hg):	0.1 mmHg at 37.8°C (100°F) (kerosene)	Density (lbs/gallon):	8.44 lbs/gallon (typical)
Vapor Density (Air=1):	4.7 (kerosene)	Melting Point/Freezing Point:	Not determined
Solubility in Water (wt %):	Emulsifiable	Boiling Point/Range:	>175°C (>347°F)(kerosene)
Viscosity:	6.56 mPa.s at 25°C (77°F)	pH (10% solution in water):	3.8
Appearance and odor:	Red to brown liquid with a sweet odor.	Flash Point:	147°F (64°C)

SECTION 10: STABILITY AND REACTIVITY

Reactivity: None known
Chemical Stability: Product is stable at ambient temperature and pressure, under normal storage and handling conditions.
Possibility of Hazardous Reactions: Will not occur
Conditions to Avoid: Avoid excessive heat.
Incompatible Materials: Acids, bases and oxidizers.
Hazardous Decomposition Products: Decomposition products depend upon temperature, air supply and the presence of other materials and may include and are not limited to: nitrogen oxides, hydrogen chloride, carbon monoxide, carbon dioxide, and trace amounts of phosgene.

SECTION 11: TOXICOLOGICAL INFORMATION

<u>ACUTE TOXICITY</u>	
Eye Effects:	May cause moderate eye irritation. Corneal injury is unlikely.
Skin Effects:	May cause mild but reversible skin irritation. LD50 >5,000 mg/kg (rabbit, male and female). Skin contact may cause an allergic skin reaction.
Acute Inhalation Effects:	4 hour LC50 >5.19 mg/L (rat, male and female)
Acute Oral Effects:	Estimated LD50 = 1,000 mg/kg (rat, male and female)
Specific Target Organ Toxicity:	Repeated Exposure: Kidney, liver, eye, thyroid (2,4-Dichlorophenoxyacetic acid, butoxyethyl ester/ Triclopyr-2-butoxyethyl ester); Central nervous system and respiratory tract (kerosene); Blood and spleen (other components)
<u>CHRONIC TOXICITY</u>	
Chronic Effects:	Contains components which have shown effects on target organs after repeated exposure.
Carcinogenicity:	For the solvent(s): In a lifetime animal dermal carcinogenicity study, an increased incidence of skin tumors was observed when kerosene was applied at doses that also produced skin irritation. This response was similar to that produced in skin by other types of chronic chemical/physical irritation. No increase in tumors was observed when non-irritating dilutions of kerosene were applied at equivalent doses, indicating that kerosene is unlikely to cause skin cancer in the absence of long-term continued skin irritation.
Mutagenicity:	For the active ingredients, in vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.
Teratogenicity:	For the active ingredients: Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals.

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Reproductive Toxicity: For similar active ingredients to those in this product, effects were only seen at doses that produced toxic effects on the parents.

POTENTIAL HEALTH EFFECTS:

Eyes: May cause moderate eye irritation. Corneal injury is unlikely.

Skin: May cause irritation with drying and flaking of the skin or redness after prolonged exposure.

Inhalation: Excessive exposure may cause irritation of the upper respiratory tract.

Ingestion: Aspiration into the lungs may occur during ingestion or vomiting, causing lung damage or even death due to chemical pneumonia. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury.

SECTION 12: ECOLOGICAL INFORMATION

ENVIRONMENTAL SUMMARY: This pesticide is toxic to fish and may be toxic to aquatic invertebrates.

ECOTOXICITY DATA:

Fish Acute and Prolonged Toxicity:	2,4-Dichlorophenoxyacetic acid, butoxyethyl ester: Bluegill sunfish (<i>Lepomis macrochirus</i>) 96 hour, static, LC50 = 0.61 mg/L Triclopyr-2-butoxyethyl ester: Bluegill sunfish (<i>Lepomis macrochirus</i>) 96 hour, flow-through, LC50 = 0.36 mg/L Rainbow trout (<i>Oncorhynchus mykiss</i>) NOEC = 0.0263 mg/L 2-Ethylhexanol: Rainbow trout (<i>Oncorhynchus mykiss</i>) 96 hour LC50 = 32 – 37 mg/L
Aquatic Invertebrate Acute Toxicity:	2,4-Dichlorophenoxyacetic acid, butoxyethyl ester: <i>Daphnia magna</i> 48 hour, static, LC50 = 7.2 – 33.0 mg/L Triclopyr-2-butoxyethyl ester: <i>Daphnia magna</i> 48 hour LC50 = 2.9 mg/L 2-Ethylhexanol: <i>Daphnia magna</i> 48 hour LC50 = 35.2 mg/L <i>Daphnia magna</i> 48 hour EC50 = 39 mg/L
Aquatic Plant Toxicity:	2,4-Dichlorophenoxyacetic acid, butoxyethyl ester: Green algae (<i>Pseudokirchneriella subcapitata</i>) 5 day, static, Biomass, EbC50 = 25 mg/L Duckweed (<i>Lemna minor</i>) 5 day, Biomass, EbC50 = 0.576 mg/L Triclopyr-2-butoxyethyl ester: Green algae (<i>Pseudokirchneriella subcapitata</i>) 96 hour, Growth rate inhibition, ErC50 >3.00 mg/L <i>Lemna gibba</i> , Biomass, EbC50 = 2.2 mg/L 2-Ethylhexanol: Green algae (<i>Pseudokirchneriella subcapitata</i>) 72 hour, Growth rate inhibition, ErC50 = 11.5 mg/L
Bird Acute and Prolonged Toxicity:	2,4-Dichlorophenoxyacetic acid, butoxyethyl ester: Material is practically non-toxic to birds on an acute basis (LD50 >2,000 mg/kg). Material is practically non-toxic to birds on a dietary basis (LD50 >5,000 ppm). Triclopyr-2-butoxyethyl ester: Material is slightly toxic to birds on an acute basis (LD50 = 501 - 2000 mg/kg). Material is slightly toxic to birds on a dietary basis (LD50 = 1001 – 5000 ppm).
Honeybee Toxicity:	Not determined

ENVIRONMENTAL EFFECTS:

Soil Absorption/Mobility:	Not determined
Persistence and degradability:	Not determined
Bioaccumulative Potential:	Not determined
Other adverse effects:	None known.

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SECTION 13: DISPOSAL CONSIDERATIONS

Waste: Dispose of in accordance with applicable Federal, state and local laws and regulations.
Container: Triple rinse and recycle the container or dispose of in accordance with Federal, state and local laws and regulations.
See pesticide product label for full instructions on disposal.
RCRA Characteristics: It is the responsibility of the individual disposing of this product to determine the RCRA classification and hazard status of the waste.

SECTION 14: TRANSPORT INFORMATION

DOT: This product is not regulated by the U.S. Department of Transportation as a hazardous material for ground shipment in quantities less than 119 gallons. For quantities of 119 gallons and greater:
(Ground) NA1993, Combustible liquid, n.o.s. (kerosene (petroleum)), 3, PGIII, RQ (2,4-D Ester)

IMDG: UN3082, Environmental Hazardous Substance, Liquid, N.O.S (2,4-D Ester, Triclopyr-2-butoxyethyl ester), 9, PGIII
(Sea)

IATA: UN3082, Environmental Hazardous Substance, Liquid, N.O.S (2,4-D Ester, Triclopyr-2-butoxyethyl ester), 9, PGIII
(Air)

TDG: Not determined
(Canada)

SECTION 15: REGULATORY INFORMATION

TSCA Inventory: This product is exempt from TSCA inventory listing requirements as it is solely for FIFRA regulated use.

SARA Title III Information:
Section 302 - Extremely hazardous substances: None listed
Section 311/312 – Hazard Categories: Immediate (Acute); Delayed (Chronic); Fire
Section 313 – The following chemicals are subject to the reporting requirements of Section 313 of Title III, Superfund Amendments and Reauthorization Act of 1986 and 40 CFR 372:
2,4-Dichlorophenoxyacetic acid, butoxyethyl ester (CAS # 1929-73-3) 34.4%

CERCLA - This product contains the following chemicals which have a reportable quantity (RQ) under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA):
2,4-D Esters have an RQ of 100 lbs (RQ reached with 35.5 gallons of product)

EPA Registration Information: This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

CAUTION
Harmful if swallowed.
Causes moderate eye irritation.
Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals
Avoid contact with eyes or clothing.
Wash thoroughly with soap and water after handling and before eating, drinking chewing gum, or using tobacco.

California Proposition 65: WARNING: This product contains a chemical known to the state of California to cause cancer and/or reproductive harm.

U.S. State Worker and Community Right-To-Know (RTK) Information (CT, IL, MA, MN, NH, NJ, PA, RI):

Chemical Name	CAS #	State(s)
2,4-Dichlorophenoxyacetic acid, butoxyethyl ester	1929-73-3	MA, NJ, PA
Kerosene	8008-20-6	MA, PA

Canadian Domestic Substances List: Not determined

WHMIS Classification: This product is not approved for use in Canada. WHMIS classification is not determined.

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SECTION 16: OTHER

Disclaimer: The information presented herein is based on available data from reliable sources and is correct to the best of WinField Solutions' knowledge. WinField Solutions, LLC makes no warranty, express nor implied, regarding the accuracy of the data or the results obtained from the use of this product. Nothing herein may be construed as recommending any practice or any product in violation of any law or regulations. The user is solely responsible for determining the suitability of any material or product for a specific purpose and for adopting any appropriate safety precautions. We disclaim all liability for injury or damage stemming from any improper use of the material or product described herein.

Revision Date: May 28, 2015

Supersedes document dated: January 8, 2015

Sections Revised: 2